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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/823,992

04/03/2001

Martin Green

GRE001

6426

7590

06/18/2004

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EXAMINER

SOUW, BERNARD E

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 06/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/823,992

Applicant(s)

GREEN ET AL.

Examiner

Bernard E Souw

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 55-77 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 55-77 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

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**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: 06/14/2004
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***After-Final Response & Amendment***

1. A Request for Reconsideration filed 04/19/2004 under 37 CFR 1.116 in response to the Final Office Action dated 12/18/2003, has been received.

### ***Misprint in Interview Summary***

2. A misprint has been discovered in the Interview Summary PTOL-413 of a personal interview conducted on 03/25/2004: In section Substance of Interview, the wording "*Claims 35 and 55 would no longer ...*" should correctly read "*Claims 35 and 54 would no longer ...*".

### ***Finality Withdrawn***

3. Upon reconsideration, the finality of the office action mailed 12/18/2003 is withdrawn. This office action supersedes the Advisory Action mailed 05/21/2004.

### ***Amendment***

4. The amendment filed 04/19/2004 under 37 CFR 1.116 in reply to the withdrawn Final Office Action mailed 12/18/2003 has been entered.

Claims 35-54 have been cancelled.

Claims 55-77 stand as previously presented.

This office action is made with all the amendments being fully considered.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 55-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yano et al. (USPAT # 5,747,800) in view of Gregory et al. (WO 98/50941) and further in view of Weinberger (USPAT 6,294,790).

Regarding claims 55 and 77, Yano et al. disclose a mass spectrometer comprising:

- an ion source 1, as shown in Fig.1(a) and recited in Col.3/ll.1-8;
- a lens (3,4,5) downstream of the ion source 1;
- a mass analyzer (8,9,10,11) downstream of the lens, as shown in Fig.1(a) and recited in Col.3/ll.18-33, the mass analyzer comprising an ion detector 12 shown in Fig.1(a), as recited in Col.4/ll.8-14; and
- control means arranged to switch the lens (3,4,5) from the first high sensitivity mode shown in Fig.1(b) to the second low sensitivity mode shown in Fig.1(c), wherein in a first high sensitivity mode of operation the lens (3,4,5) focuses a beam of ions 2, as shown in Fig.1(b) and recited in Col.4/ll.43-45, and in a second low sensitivity mode of operation the lens substantially defocuses the beam of ions 2, as shown in Fig.1(c) and recited in Col.4/ll.45-47.

In this regard, Gregory et al. indicate in the Abstract, lines 2-3, that the purpose of “*extending the dynamic measurement range of the spectrometer relative to that of the detector*” is understood by one of ordinary skill in the art as being the same as adjusting the lens to defocus the ion beam as recited in the present claims.

However, neither Yano nor Gregory teach the limitation of regularly switching back and forth between the first high sensitivity mode and the second low sensitivity mode. While such an operation mode is generally known in the art, and represents a mere matter of design choice that does not alter the functional conditions of the device or method, and furthermore, involves only routine skill in the art, a specific recitation of such an operation mode is given by Weinberger. Specifically, Weinberger expressly recites in Col.13/ll.65-67 and Col.14/ll.1-4 the wording “*The forward trajectory SCPG detector can be automatically toggled between high resolution and high molecular weight/enhanced sensitivity modes by providing electronic or mechanical switching or voltage generation means to alter the aforementioned potentials depending upon desired mode of operation*”, wherein the wording “toggled ... by .... switching” is understood in the art as being the same as Applicant’s “*switching back and forth*” between various predetermined sensitivity modes, further expressed by the wording “*depending upon desired mode of operation*”, which is understood in the art as a “*mere matter of design choice*” brought up the Examiner.

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► Claim 77 is a method claim reciting the same limitations as the above rejected apparatus claim 55. Claim 77 is therefore rejected along with claim 55 over the same prior art references.

6. Regarding claim 56, the addition of a y-focusing lens to simplify the defocusing step is conventional and well known in the art, since for that purpose only one direction perpendicular to z (optics axis) and another direction parallel to the spectrometer slit (y-axis) are involved.

7. Regarding claims 57-59, Yano's electrostatic lens system (3,4,5) is a z-focusing lens, which is an Einzel lens comprising a front 3, intermediate 4, and rear electrode 5, with voltages applied to each of them, including specific voltages being applied to the middle electrode (Yano's lens 4) for the high and low sensitive modes, as recited by Yano in Col.4/ll.15-24.

8. Regarding claims 60 and 61, the recitations of a power supply capable of specific voltages and the type of the lens (3,4,5) is inherent in Yano's, since the lens **must** be supplied with appropriate voltages from a power supply.

9. Regarding claims 62-65, the focusing conditions for the ion beam in the high and low sensitivity modes are depicted by Yano et al. in Fig.1(b) and Fig1(c) respectively, as already recited above, whereas the specific percentages of the ion beams transmitted

by the spectrometer entrance slit 7 in each of the sensitivity modes are already inherent in Yano's.

10. Regarding claim 66, an at least 10x difference in sensitivity between the high and low sensitivity modes is a mere matter of design choice which does not affect the functioning of the device or method, and furthermore, involves only routine skill in the art, and is therefore unpatentable.

11. Regarding claims 67 and 69, Yano's ion source 1 in Fig.1(a) is a continuous ion source, specifically coupled to a gas chromatograph, as recited in Col.3/ll.8-17.

12. Regarding claims 68 and 70, the recited types of ions sources are obvious variations of the ion source type already rejected in claims 67 and 69 above.

13. Regarding claim 71, Yano's ion source shown in the embodiment of Fig.4 is coupled to a liquid chromatograph, as recited in Col.6/ll.3-6.

14. Regarding claim 72, Yano's mass analyzer or spectrometer comprises a Time to Digital Converter, which is inherent in the data processing device 44 shown in Fig.1(a) and recited in Col.4/ll.12-15.

15. Regarding claim 73, Yano's mass spectrometer is a quadrupole mass analyzer, as recited in Col.3/ll.18-23.

16. Regarding claims 74 and 75, the amount of time the spectrometer spends in the low and high sensitivity modes is not critical for the functioning of the device or method, and is therefore a mere matter of design choice involving only routine skill in the art. Claims 74 and 75 are therefore unpatentable.

17. Regarding claim 76, the limitation that the lens is arranged to switch between at least three different sensitivity modes is recited by Yano et al., as recited in Col.4/ll.66-67 & Col.5/ll.1-37, i.e., upon determining that particular mass peaks in a mass spectrum are saturating or approaching saturation and mass peaks within a particular mass range in a mass spectrum are saturating or approaching saturation, as shown in Fig.2, wherein the number of different sensitivity modes --three-- is not critical for the functioning of the device. Furthermore, the limitation of regularly switching back and forth is a mere matter of design choice involving only routine skill in the art, which is rendered obvious by Weinberger, as recited in Col.13/ll.65-67 and Col.14/ll.1-4.

### ***Response to Applicant's Arguments***

18. Applicant's arguments during the 03/25/2004 personal interview have been thoroughly reconsidered. They are found not persuasive.



► The addition of the word "*predetermined*" to claims 35 and 54, as suggested by Applicant's Attorney during the 03/25/2004 interview (see attached Interview Summary) is moot, because claims 35 and 54 have been cancelled.

► During the 03/25/2003 personal interview, claims 55 and 77 have been erroneously identified as being unpatentable over Yano et al. (USPAT 5,747,800) in view of Gregory et al. (WO 98/50941). The truth is, claims 55 and 77 have been both rejected over Yano et al. in view of Gregory et al. and further in view of general knowledge in the art. This "*general knowledge in the art*" (to be regarded as "Official Notice") is here evidenced by Weinberger (USPAT 6,294,790) reciting in Col.13/II.65-67 and Col.14/II.1-4 the wording "*The forward trajectory SCPG detector can be automatically **toggled** between **high resolution** and **high molecular weight/enhanced sensitivity modes** by providing electronic or mechanical **switching** or voltage generation means to alter the aforementioned potentials depending upon **desired** mode of operation*", wherein the wording "*toggled ... by .... switching*" is understood in the art as being the same as Applicant's "*switching back and forth*" between various predetermined sensitivity modes, here further expressed by the wording "*depending upon **desired** mode of operation*", which is understood in the art as being a "*mere matter of design choice*" brought up the Examiner.

### **Communications**

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard E Souw whose telephone number is 571 272


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2482. The examiner can normally be reached on Monday thru Friday, 9:00 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571 272 2477. The central fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for regular communications as well as for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

bes  
June 15, 2004

  
JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800